

Date & Time Filed: Feb 7 2022 12:16:30:986PM
File Number: SES-LIC-INTR2022-00457
Callsign/Satellite ID:

APPLICATION FOR EARTH STATION AUTHORIZATIONS FCC 312 MAIN FORM FOR OFFICIAL USE ONLY	FCC Use Only
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APPLICANT INFORMATION

Enter a description of this application to identify it on the main menu:

Chandrayaan2 Lunar Support Form 312

1-8. Legal Name of Applicant

Name:	Universal Space Network, Inc.	Phone Number:	215−328−9130
DBA Name:		Fax Number:	215−328−9132
Street:	417 Caredean Drive Suite A	E-Mail:	Noah.Berkowitz@sscspace.com
City:	Horsham	State:	PA
Country:	USA	Zipcode:	19044 -
Attention:	Noah Berkowitz		

9-16. Name of Contact Representative

Name:	F. William LeBeau	Phone Number:	202-862-5965
Company:	Holland & Knight LLP	Fax Number:	202-955-5564
Street:	800 17th Street, NW Suite 1100	E-Mail:	bill.lebeau@hklaw.com
City:	Washington	State:	DC
Country:	USA	Zipcode:	20006-
Attention:	Bill LeBeau	Relationship:	Legal Counsel

CLASSIFICATION OF FILING

- | | |
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| <p>17. Choose the button next to the classification that applies to this filing for both questions a. and b. Choose only one for 17a and only one for 17b.</p> <p>a.</p> <p>a1. Earth Station</p> <p>(N/A) a2. Space Station</p> | <p>b.</p> <p>b1. Application for License of New Station</p> <p>b2. Application for Registration of New Domestic Receive-Only Station</p> <p>(N/A) b3. Amendment to a Pending Application</p> <p>(N/A) b4. Modification of License or Registration</p> <p>(N/A) b5. Assignment of License or Registration</p> <p>(N/A) b6. Transfer of Control of License or Registration</p> <p>(N/A) b7. Notification of Minor Modification</p> <p>(N/A) b8. Application for License of New Receive-Only Station Using Non-U.S. Licensed Satellite</p> <p>(N/A) b9. Letter of Intent to Use Non-U.S. Licensed Satellite to Provide Service in the United States</p> <p>b10. Other (Please specify)</p> <p>b11. Application for Earth Station to Access a Non-U.S. satellite Not Currently Authorized to Provide the Proposed Service in the Proposed Frequencies in the United States.</p> <p>b12. Application for Database Entry</p> <p>(N/A) b13. Amendment to a Pending Database Entry Application</p> <p>(N/A) b14. Modification of Database Entry</p> |
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17c. Is a fee submitted with this application? If Yes, complete and attach FCC Form 159. If No, indicate reason for fee exemption (see 47 C.F.R. Section 1.1114). Governmental Entity Noncommercial educational licensee Other (please explain):	
17d. Fee Classification BAX – Fixed Satellite Transmit/Receive Earth Station	
18. If this filing is in reference to an existing station, enter: (a) Call sign of station: Not Applicable	19. If this filing is an amendment to a pending application enter: (a) Date pending application was filed: Not Applicable (b) File number of pending application: Not Applicable

TYPE OF SERVICE

20. NATURE OF SERVICE: This filing is for an authorization to provide or use the following type(s) of service(s): Select all that apply: a. Fixed Satellite b. Mobile Satellite c. Radiodetermination Satellite d. Earth Exploration Satellite e. Direct to Home Fixed Satellite f. Digital Audio Radio Service g. Other (please specify) Lunar Spacecraft Mission Support	
21. STATUS: Choose the button next to the applicable status. Choose only one. Common Carrier Non-Common Carrier	22. If earth station applicant, check all that apply. Using U.S. licensed satellites Using Non-U.S. licensed satellites

23. If applicant is providing INTERNATIONAL COMMON CARRIER service, see instructions regarding Sec. 214 filings. Choose one. Are these facilities: Connected to a Public Switched Network Not connected to a Public Switched Network N/A
24. FREQUENCY BAND(S): Place an "X" in the box(es) next to all applicable frequency band(s). a. C-Band (4/6 GHz) b. Ku-Band (12/14 GHz) c. Other (Please specify upper and lower frequencies in MHz.) Frequency Lower: 2041.598 Frequency Upper: 8483.968

TYPE OF STATION

25. CLASS OF STATION: Choose the button next to the class of station that applies. Choose only one. a. Fixed Earth Station b. Temporary-Fixed Earth Station c. 12/14 GHz VSAT Network d. Mobile Earth Station (N/A) e. Geostationary Space Station (N/A) f. Non-Geostationary Space Station g. Other (please specify)
26. TYPE OF EARTH STATION FACILITY: Choose only one. Transmit/Receive Transmit-Only Receive-Only N/A

PURPOSE OF MODIFICATION

27. The purpose of this proposed modification is to: (Place an 'X' in the box(es) next to all that apply.) Not Applicable

ENVIRONMENTAL POLICY

28. Would a Commission grant of any proposal in this application or amendment have a significant environmental impact as defined by 47 CFR 1.1307? If YES, submit the statement as required by Sections 1.1308 and 1.1311 of the Commission's rules, 47 C.F.R. §§ 1.1308 and 1.1311, as an exhibit to this application. A Radiation Hazard Study must accompany all applications for new transmitting facilities, major modifications, or major amendments.	Yes No Rad Haz
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ALIEN OWNERSHIP Earth station applicants not proposing to provide broadcast, common carrier, aeronautical en route or aeronautical fixed radio station services are not required to respond to Items 30–34.

29. Is the applicant a foreign government or the representative of any foreign government?	Yes No
30. Is the applicant an alien or the representative of an alien?	Yes No N/A
31. Is the applicant a corporation organized under the laws of any foreign government?	Yes No N/A
32. Is the applicant a corporation of which more than one-fifth of the capital stock is owned of record or voted by aliens or their representatives or by a foreign government or representative thereof or by any corporation organized under the laws of a foreign country?	Yes No N/A

33. Is the applicant a corporation directly or indirectly controlled by any other corporation of which more than one-fourth of the capital stock is owned of record or voted by aliens, their representatives, or by a foreign government or representative thereof or by any corporation organized under the laws of a foreign country?	Yes No N/A
34. If any answer to questions 29, 30, 31, 32 and/or 33 is Yes, attach as an exhibit an identification of the aliens or foreign entities, their nationality, their relationship to the applicant, and the percentage of stock they own or vote.	

BASIC QUALIFICATIONS

35. Does the Applicant request any waivers or exemptions from any of the Commission's Rules? If Yes, attach as an exhibit, copies of the requests for waivers or exceptions with supporting documents.	Yes No
36. Has the applicant or any party to this application or amendment had any FCC station authorization or license revoked or had any application for an initial, modification or renewal of FCC station authorization, license, or construction permit denied by the Commission? If Yes, attach as an exhibit, an explanation of circumstances.	Yes No
37. Has the applicant, or any party to this application or amendment, or any party directly or indirectly controlling the applicant ever been convicted of a felony by any state or federal court? If Yes, attach as an exhibit, an explanation of circumstances.	Yes No

38. Has any court finally adjudged the applicant, or any person directly or indirectly controlling the applicant, guilty of unlawfully monopolizing or attempting unlawfully to monopolize radio communication, directly or indirectly, through control of manufacture or sale of radio apparatus, exclusive traffic arrangement or any other means or unfair methods of competition? If Yes, attach as an exhibit, an explanation of circumstances	Yes	No
39. Is the applicant, or any person directly or indirectly controlling the applicant, currently a party in any pending matter referred to in the preceding two items? If yes, attach as an exhibit, an explanation of the circumstances.	Yes	No
40. If the applicant is a corporation and is applying for a space station license, attach as an exhibit the names, address, and citizenship of those stockholders owning a record and/or voting 10 percent or more of the Filer's voting stock and the percentages so held. In the case of fiduciary control, indicate the beneficiary(ies) or class of beneficiaries. Also list the names and addresses of the officers and directors of the Filer.		
41. By checking Yes, the undersigned certifies, that neither applicant nor any other party to the application is subject to a denial of Federal benefits that includes FCC benefits pursuant to Section 5301 of the Anti-Drug Act of 1988, 21 U.S.C. Section 862, because of a conviction for possession or distribution of a controlled substance. See 47 CFR 1.2002(b) for the meaning of "party to the application" for these purposes.	Yes	No
42a. Does the applicant intend to use a non-U.S. licensed satellite to provide service in the United States? If Yes, answer 42b and attach an exhibit providing the information specified in 47 C.F.R. 25.137, as appropriate. If No, proceed to question 43.	Yes	No
	Attachment 1	

42b. What administration has licensed or is in the process of licensing the space station? If no license will be issued, what administration has coordinated or is in the process of coordinating the space station? Indian Space Research Organisation IRSO

43. Description. (Summarize the nature of the application and the services to be provided). (If the complete description does not appear in this box, please go to the end of the form to view it in its entirety.)

This application seeks FCC approval for a new earth station application to be used for in support of TT&C, TM & Payload Data download operations of a the Chandrayaan2 lunar orbiter mission, as further described in the attachments.

Public Interest Exh

43a. Geographic Service Rule Certification

By selecting A, the undersigned certifies that the applicant is not subject to the geographic service or geographic coverage requirements specified in 47 C.F.R. Part 25.

A

By selecting B, the undersigned certifies that the applicant is subject to the geographic service or geographic coverage requirements specified in 47 C.F.R. Part 25 and will comply with such requirements.

B

By selecting C, the undersigned certifies that the applicant is subject to the geographic service or geographic coverage requirements specified in 47 C.F.R. Part 25 and will not comply with such requirements because it is not feasible as a technical matter to do so, or that, while technically feasible, such services would require so many compromises in satellite design and operation as to make it economically unreasonable. A narrative description and technical analysis demonstrating this claim are attached.

C

CERTIFICATION

The Applicant waives any claim to the use of any particular frequency or of the electromagnetic spectrum as against the regulatory power of the United States because of the previous use of the same, whether by license or otherwise, and requests an authorization in accordance with this application. The applicant certifies that grant of this application would not cause the applicant to be in violation of the spectrum aggregation limit in 47 CFR Part 20. All statements made in exhibits are a material part hereof and are incorporated herein as if set out in full in this application. The undersigned, individually and for the applicant, hereby certifies that all statements made in this application and in all attached exhibits are true, complete and correct to the best of his or her knowledge and belief, and are made in good faith.

44. Applicant is a (an): (Choose the button next to applicable response.)

Individual
Unincorporated Association
Partnership
Corporation
Governmental Entity
Other (please specify)

45. Name of Person Signing
Dan White

46. Title of Person Signing
President

47. Please supply any need attachments.

Attachment 1:

Attachment 2:

Attachment 3:

WILLFUL FALSE STATEMENTS MADE ON THIS FORM ARE PUNISHABLE BY FINE AND / OR IMPRISONMENT
(U.S. Code, Title 18, Section 1001), AND/OR REVOCATION OF ANY STATION AUTHORIZATION
(U.S. Code, Title 47, Section 312(a)(1)), AND/OR FORFEITURE (U.S. Code, Title 47, Section 503).

SATELLITE EARTH STATION AUTHORIZATIONS
FCC Form 312 – Schedule B:(Technical and Operational Description)
FOR OFFICIAL USE ONLY

Location of Earth Station Site

E1: Site Identifier:	USHI02	E5. Call Sign:	
E2: Contact Name	Diana Erikson	E6. Phone Number:	808-929-8069
E3. Street:	93-1704 South Point Road	E7. City:	Naalehu
		E8. County:	Ka'u
E4. State	HI	E9. Zip Code	96772
E10. Area of Operation:	Hawaii		
E11. Latitude:	19 °0 '49.6 "N		
E12. Longitude:	155 °39 '46.6 "W		
E13. Lat/Lon Coordinates are:	NAD-27	NAD-83	N/A
E14. Site Elevation (AMSL):	373.0 meters		

E15. If the proposed antenna(s) operate in the Fixed Satellite Service (FSS) with geostationary satellites, do(es) the proposed antenna(s) comply with the antenna gain patterns specified in Section 25.209(a) and (b) as demonstrated by the manufacturer's qualification measurement? If NO, provide as a technical analysis showing compliance with two-degree spacing policy.	Yes	No	N/A
E16. If the proposed antenna(s) do not operate in the Fixed Satellite Service (FSS), or if they operate in the Fixed Satellite Service (FSS) with non-geostationary satellites, do(es) the proposed antenna(s) comply with the antenna gain patterns specified in Section 25.209(a2) and (b) as demonstrated by the manufacturer's qualification measurements?	Yes	No	N/A
E17. Is the facility operated by remote control? If YES, provide the location and telephone number of the control point.	Yes	No	

E18. Is frequency coordination required? If YES, attach a frequency coordination report as	Yes	No
E19. Is coordination with another country required? If YES, attach the name of the country(ies) and plot of coordination contours as	Yes	No
E20. FAA Notification – (See 47 CFR Part 17 and 47 CFR part 25.113(c)) Where FAA notification is required, have you attached a copy of a completed FCC Form 854 and or the FAA's study regarding the potential hazard of the structure to aviation? FAILURE TO COMPLY WITH 47 CFR PARTS 17 AND 25 WILL RESULT IN THE RETURN OF THIS APPLICATION.	Yes	No

POINTS OF COMMUNICATION

Satellite Name: OTHER OTHER If you selected OTHER, please enter the following:	
E21. Common Name: Chandrayaan2	E22. ITU Name: Chandrayaan2
E23. Orbit Location: NGSO	E24. Country: India

POINTS OF COMMUNICATION (Destination Points)

E25. Site Identifier:	
E26. Common Name:	E27. Country:

ANTENNA

Site ID	E28. Antenna Id	E29. Quantity	E30. Manufacturer	E31. Model	E32. Antenna Size<meters>	E41/42. Antenna GainTransmint and/or Recieve (____dBi at ____GHz)
USHI02	HI-13M-2	1	Datron	1453	13.0	58.6 dBi at 8.45
						47.0 dBi at 2.21712
						46.1 dBi at 2.041598

E28. Antenna Id	E33/34. Diameter Minor/Major (meters)	E35. Above Ground Level (meters)	E36. Above Sea Level (meters)	E37. Building Height Above Ground Level (meters)	E38. Total Input Power at antenna flange (Watts)	E39. Maximum Antenna Height Above Rooftop (meters)	E40. Total EIRP for al carriers (dBW)
HI-13M-2	13.0/13.0	13.0	386.0	0.0	200.0	0.0	68.0

FREQUENCY

E28. Antenna Id	E43/44. Frequency Bands (MHz)	E45. T/R Mode	E46. Antenna Polarization(H,V, L,R)	E47. Emission Designator	E48. Maximum EIRP per Carrier (dBW)	E49. Maximum ERIP Density per Carrier (dBW/4kHz)
HI-13M-2	8484.000	R	Left and Right Circular	8M4G1D	0.0	0.0

E50. Modulation and Services (If the complete description does not appear in this box, please go to the end of the form to view it in its entirety.) 4.2 Mbps QPSK modulation						
HI-13M-2	2041.598	T	Left and Right Circular	1M00G2D	74.0	50.0
E50. Modulation and Services (If the complete description does not appear in this box, please go to the end of the form to view it in its entirety.) 125 bps on 8 KHz subcarrier with 500 KHz ranging tone						
HI-13M-2	2217.120	R	Left and Right Circular	1M00G2D	0.0	0.0
E50. Modulation and Services (If the complete description does not appear in this box, please go to the end of the form to view it in its entirety.) 2 Kbps on 32 KHz subcarrier with 500 KHz ranging tone						

FREQUENCY COORDINATION

E28. Antenna Id	E51. Satellite Orbit Type	E52/53. Frequency Limits(MHz)	E54/55. Range of Satellite Arc E/W Limit	E56. Earth Station Azimuth Angle Eastern Limit	E57. Antenna Elevation Angle Eastern Limit	E58. Earth Station Azimuth Angle Western Limit	E59. Antenna Elevation Angle Western Limit	E60. Maximum EIRP Density toward the Horizon (dBW/4kHz)
HI-13M-2	Non-Geostationary	2041.598 2041.598	0.0/ 0.0	0.0	5.0	360.0	5.0	10.0
	Non-Geostationary	2217.120 2217.120	0.0/ 0.0	0.0	5.0	360.0	5.0	0.0
	Non-Geostationary	8484.000 8484.000	0.0/ 0.0	0.0	5.0	360.0	5.0	0.0

REMOTE CONTROL POINT LOCATION

E61. Call Sign NOTE: Please enter the callsign of the controlling station, not the callsign for which this application is being filed.		E65. Phone Number 215−328−9130	
E62. Street Address 417 Caredean Drive Suite A			
E63. City Horsham	E67. County Montgomery	E64/68. State/Country PA/ USA	E66. Zip Code 19044

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